

AMATEUR SATELLITE REPORT

AMSAT® NA Newsletter for the Amateur Radio Space Program



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AMSAT Headquarters has announced that a member dues increase will go into effect March 1. The exact amount of the increase continues under study but will be announced very shortly. Meanwhile, members are encouraged to renew now for several years in advance of the dues increase. RENEW NOW.

Preparations Pace Quickens With Launch Day Approach

The amateur space community is passing through the "3 months and counting" milestone for the mid-April launch of Phase 3C, the most complex and capable OSCAR ever built. As the countdown proceeds, AMSAT planners are organizing a major launch support project to bring the excitement of the live launch countdown to AMSAT members and members-to-be across the globe.

The V-22 launch will take place on or about April 15 at about 12:30 UTC. The AMSAT Launch Information Network Service, ALINS, will provide extensive pre-launch, launch countdown and post-launch coverage on a world-wide radio and telephone hookup. Operations Vice President Ralph Wallio, WØRPK, says a team of stations will combine to cover the HF bands. The morning (Kourou time) launch of V-22 should provide good ALINS coverage on several HF bands. ARRL Headquarters station W1AW will join the team of ALINS stations covering the launch of Phase 3 according to ARRL Membership Communications Manager John Lindholm, W1XX.

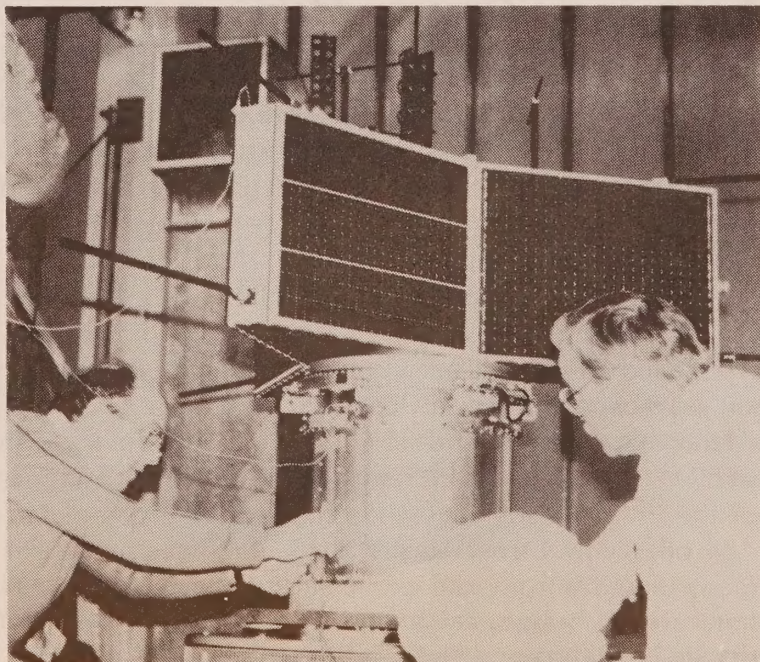
The launch of the first Ariane-4 rocket from the ELA-2 pad is designated V-22. The "V" in V-22 stands for the French word "vol" or "flight". There will be three satellites aboard V-22. In addition to AMSAT's Phase 3C, there will be the METEOSAT and PANAMSAT spacecraft. These two spacecraft and the two to be launched next on V-21, SPACENET IIIR/GEOSTAR R01 and TELECOM 1C, are already in Kourou. The two satellites to be launched on V-21

have recently completed their preparations in the S1 preparations building at Kourou and will be launched from the ELA 1 pad on an Ariane 3 vehicle the evening of March 4.

The Phase 3C satellite has completed its program of testing in Marburg, West Germany and, after some last minute fine-tuning, will be prepared for shipment soon to Paris and then on to the airport at Cayenne, French Guiana. From there it will be trucked by special vehicle to the ESA launch site at Kourou.

AMSAT VP of Engineering Jan King, W3GEY, met January 3 with many of the AMSAT-NA launch support team in Boulder, Colorado. The AMSAT-NA launch support team now plans to depart for Kourou in late February. This team, working with their colleagues from AMSAT-DL, will apply the last elements of the spacecraft before its integration with the launcher. They will apply thermal blankets, fill the tanks with the fuel and oxidizer and perform other preparatory tasks. Then, with the spacecraft fully powered and on the Ariane launcher, they will work round-the-clock shifts for up to two weeks to constantly monitor the spacecraft's telemetry stream being ever alert to anomalous conditions.

In related news, commitments for launch insurance have now been made and all AMSAT members are encouraged



Preparing Phase 3C for vibration tests in Germany, December, 1987.

to share in this important activity. Substantial launch insurance donations have been made by AMSAT-UK, SA-AMSAT and BRAMSAT. Now it's your chance to help. If you haven't already done so, send in a modest contribution to the Phase 3C launch insurance campaign. It's needed now to avoid having to cut back on other services to fund the launch insurance.

Field Operations Begins Convention Support Planning For 1988

AMSAT Field Operations VP Doug Loughmiller, KO5I, points out that with the new year, the convention planning cycle begins anew. In a typical calendar year AMSAT supports 3 dozen large conventions and hamfests as well as numerous flea markets and other special events. New coordination and planning procedures will be in effect this year KO5I says.

First, at least 30 days lead time will be required for adequate support of major conventions. This is necessary to package and economically ship materials and supplies needed in AMSAT convention booths. If you expect AMSAT Headquarters support for your convention, be sure to give Doug, KO5I, or your Regional Coordinator, at least 30 days advance notice.

Second, Field Operations is establishing an AMSAT Speakers' Bureau to respond to and coordinate requests for AMSAT speakers and representatives at conventions and meetings. If you have received an invitation to speak or a solicitation to provide a speaker, whether you intend to respond personally yourself or not, please alert KO5I so he can insure the event is properly slated in AMSAT's master event schedule.

Please report all speaking invitations to: AMSAT Speakers' Bureau, c/o Doug Loughmiller, KO5I, 620 Fairway Dr., Paris, Texas, 75460. Similarly, if you are an event sponsor and desire an AMSAT speaker for the event, contact KO5I to coordinate your event.

All AMSAT Regional and Area Coordinators are urged to help make the 1988 convention year, focusing on the successful launch of Phase 3C, the best in AMSAT history.

Gales Again Damage Main UoSAT Command Station

Severe gales have again struck the south of England and have damaged the primary UoSAT Mission Control Station antennas at the University of Surrey (UoS). The arrays had been temporarily repaired following the October 1987 hurricane and were awaiting complete refurbishment.

The recent gales struck the week of January 3. The back-up antenna system, comprising the now-famous UoS gun-mount and "dish", has been undergoing refurbishment after ten years of continuous service. Slim and Brian at UoS worked through the high winds to complete the refit of the dish so UO-9 and 11 could be returned to service. UO-11 was off the air for several days whilst this work was completed.

In other news from Surrey, UoS continues to receive many inquiries from listeners regarding UoSAT spacecraft transmission formats, calibration equations and experiment details. A 60-page "UoSAT Spacecraft Data Booklet" describing these topics in detail (for both UoSAT-1 & 2) is

available from UoS and AMSAT-UK for three and one half pounds. Write to:

AMSAT UK

94 Herongate Road

Wanstead Park, London, E12 5EQ England

Payment in English pounds is required.

December Shuttle SRB Test Now Called "Major Failure"

Reversing earlier preliminary announcements, a NASA spokesman has acknowledged the December 23 ground test of a Shuttle rocket booster (SRB) engine revealed major flaws. Although preliminary reports of the full scale, horizontal test had declared the results a complete success, a subsequent NASA announcement December 29 once again cast a pall over prospects for a 1988 resumption of shuttle launches. The announcement said a major failure had occurred in the area of the SRB nozzle boot retainer ring.

As if this were insufficient, NASA announced the week of January 3 that close examination had revealed still further difficulty with hot gases reaching the O-rings in a field joint. This could complicate further the shuttle recovery effort. Some have discounted the significance of these "pinholes" in the sealing putty designed to protect the O-rings in the new clevis-joints. But others have cautioned that much deeper understanding of the problem is required before this new anomaly can be discounted as "inconsequential".

Estimates of when the required fixes can be implemented varied widely. It appears now the shuttle Discovery can be launched no sooner than September 1988 and perhaps as late as 1989 depending on how much redesign is involved.

Obviously, all SAREX (Shuttle Amateur Radio Experiments) are on hold pending resumption of shuttle operations. Tony England, WØORE and Ron Parise, WA4SIR, are the only currently licensed amateurs in the Astronaut corps. Tony has flown before while Ron has not. Both have plans for SAREX operations during their future flights. Tony's future missions will again emphasize video exchanges in an educational setting while Ron's activities will emphasize packet radio exchanges. Neither appears likely in 1988, however.

Soyuz Module Successfully Recovered In Kazakhstan

The Soviet Union capped another major space mission with the safe return to earth December 29 of three Cosmonauts including Yuri Romanenko who set a space endurance record of 326 consecutive days in space. He was accompanied by Alexander Alexandrov and Anatoly Levchencko in the safe landing in the Soviet province of Kazakhstan in the Steppes. The crew was flown by helicopter to the Baikonur Cosmodrome at Tyuratam where they were received by space officials, family, dignitaries and other well-wishers.

Romanenko appeared alert but weak as he disembarked from the Soyuz module upon landing. He was carried by stretcher to the waiting helicopter. The landing was broadcast live on Soviet television. By the time the helicopter reached the Cosmodrome, however, Romanenko was fit

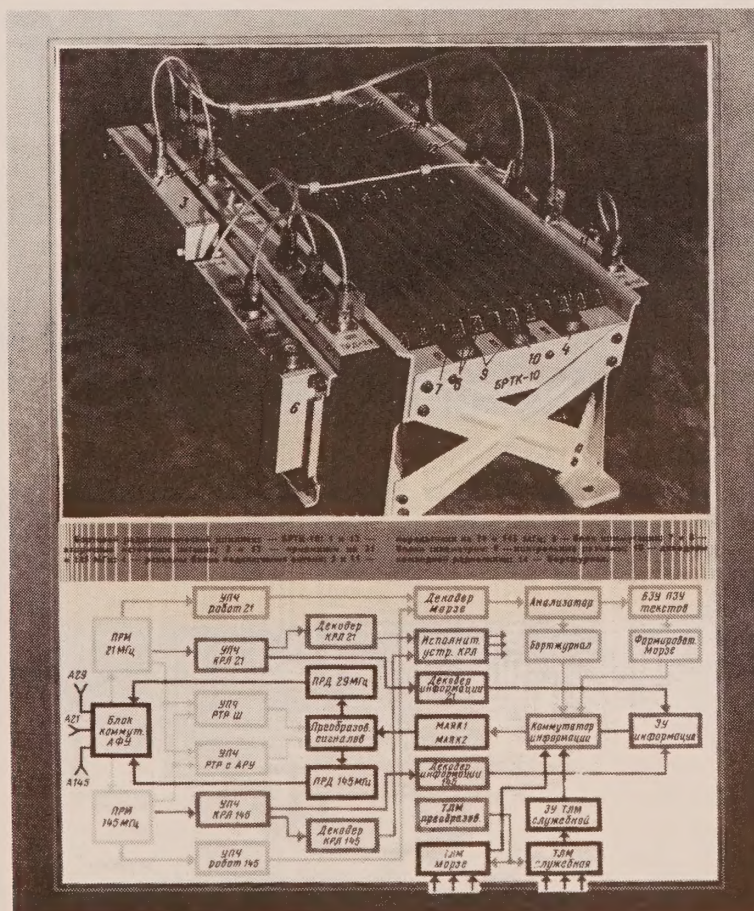
enough to walk unaided having regained the use of his faculties in the gravity environment he hadn't felt in very nearly 11 months. The Soviets have said the crew launched December 21, which relieved Romanenko and Alexandrov, will stay aloft as long as one year to study the effects of prolonged weightlessness as a prelude to a planned three year long flight to Mars in the next decade. The crew on Mir now consists of Mission Commander and space veteran Vladimir Titov and Pilot/Engineer Musa Manarov.

Since his launch to orbit last January, Romanenko circled the earth more than 5200 times covering nearly 130,000,000 miles at an altitude of 210 miles above earth. In the past, Cosmonauts have been heard on the VHF band at 143.625 MHz making them easily observed on many receivers.

AO-10 Operating Conditions Good As Many Return During Holidays

AO-10 use is picking up again as many have used the year-end holiday period to become reacquainted with the veteran satellite. Mode B operations have been good to excellent thanks in part to the operating schedule which allows operation at and near to perigee. The reduced path losses which result from operating near perigee more than compensate for the use of the omni antennas on the satellite. The omni antennas have been switched on line since the last power restoral a couple of months ago.

Stations monitored during the holiday period seemed to have no difficulty using Mode B with modest power levels and comments were generally favorable concerning the QSO-quality. AO-10's apogee is now approaching its most northerly extent near 27 degrees North latitude. This means that northern stations have their best shot ever at over-the-pole DX and they should take advantage of the opportunity to work into the Indian Ocean area while they can.



Russian Trekkers Leave For Home While Nordski Info Prepared

Leo Labutin, UA3CR, and his colleagues in the joint Russian/Canadian Skitrek Expedition returned home to the Soviet Union Christmas Day after their most recent training and familiarization tour in Canada. The Skitrek is now due to depart on the three month cross-polar trek on or about March 1.

Beginning in March, a joint Canadian-Russian skiing team will ski across the North Pole on a 3 month Polar Skitrek. Amateur Radio will be very much a part of the Skitrek. Contacts between Amateurs around the world and special support bases set up above the Arctic Circle are just part of the picture.

Project Nordski will involve the UoSAT OSCAR 11 Digitalker, in conjunction with the international SAR-SAT/COSPAS satellites, will help to provide navigational information to the skiers. A complete information packet about Skitrek and Nordski has been prepared by AMSAT's Science Education Advisor Dick Ensign, N8IWJ. To obtain the free kit, please write:

Richard Ensign, N8IWJ
AMSAT Science Education Advisor
421 North Military
Dearborn, MI 48124

The info packet is tailored to educators who wish to include tracking the trekkers in their high school science classes and will be mailed February 1. It would be most helpful to include your latitude and longitude in your request letter. An SASE is NOT required however.

In related developments, ICOM America has agreed to provide all required HF communications equipment for the Skitrek. ICOM is also providing the micro-2AT 2 meter HTs the trekkers will use to listen for UO-11's Digitalker while skiing across the polar region.

Also, AEA President Mike Lamb, N7ML, has personally intervened to help the Skitrek team. When he learned they needed packet radio equipment, Mike volunteered to provide AEA's outstanding PK-232 packet/RTTY/AMTOR equipment for the team. The packet radio stations will operate from three support bases but will not be in contact via packet with the skiers. The Skitrek's chief radio operator, UA3CR, has said he believes the successful use of packet radio in support of the Skitrek will go a long way to paving the way for general VHF packet radio, including digipeaters, in the USSR. Currently UA3CR is the only active packeteer in the Soviet Union.

Meteor Scatter Robot Station Operates In Contest

A robot 6 meter packet radio METSCAT station will be on-the-air in central Iowa during several VHF operating events in 1988. Stations within 2000 km will be able to test the feasibility of automatic contest operation by attempting a QSO. During the January 23-25 ARRL VHF SWEEPSTAKES, the WØRPK-robot will operate in grid square EN31 on 50.505 MHz FM feeding 160 watts to a 5-element yagi.

During Saturday morning, January 23, the antenna will be slowly swept from the northeast through south and on

◀The BPTK-10 (RS-10) transponder and block diagram from the Russian Radio magazine, October 1987.

to the northwest to take advantage of post-sunrise conditions. Schedule requests are encouraged for any time during the contest.

Attempts to work the robot will start with distant stations sending continuous CONNECT REQUEST packets. When one is detected by the robot, it will return a single packet containing a CONNECT ACKNOWLEDGMENT, a QSO SERIAL NUMBER and a DISCONNECT REQUEST. This packet will be retransmitted until a DISCONNECT REQUEST ACKNOWLEDGMENT is detected. Up to ten simultaneous QSOs will be possible. HEARD STATION beacon packets and WORKED STATION beacon packets will be transmitted. Robot QSO functions will be provided by SAREX-II TNC software developed by Howard Goldstein, N2WX, as part of a project lead by Dr. Tom Clark, W3IWI, to fly packet radio capabilities in the Space Shuttle.

Additional 6 meter METSCAT operation is planned for grid-square DXpeditions during the June and September ARRL VHF operating events. For more information, contact WØRPK at his callbook address, at home on 515-961-6406, at the office on 515-224-7440, on the WØRPK-AMSAT BBS 515-961-3325 or via packet radio @ WAØJFS-1 via the NØAN HF gateway.

Short Bursts

- Strong technical articles are needed for QEX, the joint AMSAT-ARRL monthly publication. Recent manuscripts have been submitted by Tom Clark, W3IWI, Bob McGwier, N4HY and Peter Prendergast, KC2PH. Would you like yours

included too? Write or call AMSAT for further information on getting your technical article in QEX.

- The newest station to join the UO-11 DCE network is ZS6IT who will be on shortly. Meanwhile, the South African communications authorities have determined that Amateur Radio packet activity does not comprise third party traffic thus clearing the way for SA AMSAT DCE activities.

- JARL is apparently offering an award for FO-12 Mode JA QSOs. According to one source, 10 QSL cards qualify you for an award. Detailed information on this will be posted on the FO-12 BBS soon by the command station JJ1ZUT. Also, a FO-12 SWL card is available from JARL. Details when available.

FO-12 Ops Schedule

Here is the operating schedule for FO-12 for the next several days:

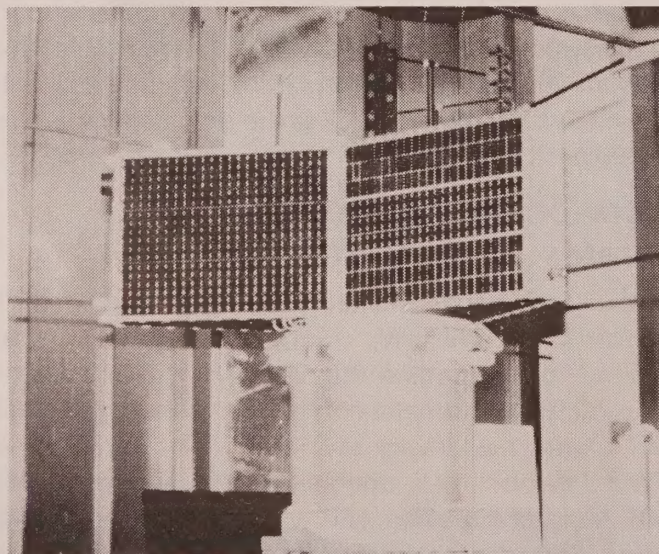
Operating Schedule for FO-12

Mode	From	(UTC)	To	(UTC)
JD	Jan19	12:55	20	12:01
JD	21	13:08	22	12:14
JD	23	11:21	24	12:28
JA	26	12:41	27	11:47
JA	28	10:53	29	12:01
JA	30	11:07	Feb 1	09:19

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The Phase 3C spacecraft stands fully assembled for vibration test in Germany, December 1987.

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